Inside Wallops

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility, Wallops Island, Virginia Volume XX-03 Number 12 April 7, 2003

Researchers Apply NASA Technologies to Aviation Security

NASA researchers are looking at ways to adapt aviation technologies already being developed to improve aviation security. The NASA Aviation Safety and Security Program (AvSSP), managed by NASA's Langley Research Center is focusing on areas where NASA expertise could make a significant contribution to security.

NASA wants to use its decades of aeronautics research know-how to make airliners and their passengers more secure in years to come.

"We're looking at long-term, technologies that could be built into next-generation aircraft designs as well as trying to determine how new technologies might be able to be incorporated into current airplanes," said Beth Plentovich, Aviation Security project planning lead at NASA Langley.

Initially much of the effort will center on aircraft and systems hardening. Some of that research will look at an airborne operational concept that would automatically keep airplanes away from national landmarks, security targets and other "protected areas."

NASA demonstrated one concept — an automatic protected area avoidance system — using its 757 Airborne Research Integrated Experiments System (ARIES) aircraft. Engineers integrated two aviation safety technologies that are under development to create an automatic protected area avoidance system on board the ARIES flying laboratory.

Researchers adapted "refuse to crash" computer software being developed by the Aviation Safety and Security Program's Single Aircraft Accident Project and combined it with a 3-D computerized terrain cockpit database created by AvSSP's Synthetic Vision Systems project.

During the demonstration, the 757 flew over **NASA's Wallops Flight Facility**, but on synthetic vision screens inside the aircraft it looked like the plane was flying approaches into Reagan Washington National Airport.

As the plane neared one of four protected areas built into the simulation, a warning dome appeared over the landmark on the experimental Synthetic Vision cockpit display. The dome changed from yellow to red (below) the closer the pilot got to the simulated protected area.

Photo by Jeff Caplan

If the research pilot didn't steer clear after the red warning was shown during the limited, very controlled flight experiment, the "refuse to crash" system veered the plane away.

"The experiment on board NASA's 757 was just a demonstration of a hypothetical concept. To implement this kind of system in today's airline operations would be very challenging. Much more research is needed, but the test showed that new technology may some day be able to help improve aviation security," added Plentovich.

Other security applications include technology to detect and track unusual air traffic movements. That work is part of the NASA Airspace Systems Program managed from NASA's Ames Research Center.

Centennial of Flight Milestones

33 years ago on April 11, 1970, the Apollo 13 mission was launched.

42 years ago on April 12, 1961, Soviet Cosmonaut Yuri Gargarin makes first trip into space.

Wallops Shorts.....

In the News

SpaceNews
"School Wins NASA Contract"

Eastern Shore News
"War in Iraq – Patrolling the Shore's Coast, Sky, Landmarks"

Daily Times
"Coast Guard Increases Shore's Patrol"

Sounding Rocket Launches

A NASA Black Brant X (BBX) sounding rocket was successfully launched from the Poker Flat Research Range, Alaska, on March 25. The mission measured the vertical and horizontal neutral winds near a stable auroral arc system and relative plasma density variations along the horizontal trajectory using a payload plasma probe.

A NASA Terrier-Orion was launched 19 minutes after the BBX launch. The purpose of this mission was to map the height variation of the E-region winds below and to a lesser extent, above the horizontal trail that was released by the BBX rocket. Dr. Mark Conde from the University of Alaska was the principal investigator. Tracy Gibb, NSROC, was the payload manager.

Auroral Launches Conducted

A series of NASA sounding rockets were launched from Poker Flat Research Range, Alaska, on March 27. The geospace science experiments were conducted during active auroras using a Black Brant VB, a Terrier-Black Brant, and two Terrier-Orion vehicles.

One of the Terrier-Orions experienced a problem with the second stage and the vehicle did not reach the predicted altitude. Radar tracking showed that the second-stage motor and the payload impacted approximately 11 miles north of the range, in a snowy, isolated area in northern Alaska. The other three vehicles performed as planned. This was the first failure of this class of Terrier-Orion vehicle.

The payload contained the chemical trimethyaluminun (TMA). The chemical was to be released in space to allow scientists to "see" wind movements during an auroral event with special cameras on the ground. NASA and Poker Flat Research Range personnel located the intact payload.

Dr. Miguel Larsen of Clemson University was the principal investigator. Bruce Scott, NSROC, was the payload manager.

Wallops Employees On the Road

Mike Hooks, EG&G, served as a judge for the Environthon held at the Marine Science Consortium on March 26.

Magdi Said and Roy Tolbert, NASA Carrier Systems Branch, staffed a Balloon Program exhibit at the American Horticultural Society's annual conference in Alexandria, Va., on March 29 and 30. The AMH is supplying seeds to be flown on an upcoming balloon mission as part of their program, "The Growing Connection - Cultivating Food, Connecting Minds and Harvesting Hope".

John Campbell, NASA Suborbital and Special Orbital Projects, was the guest speaker for the Pocomoke Lion's Club meeting on April 1.

Dwayne Morgan, NASA Real-Time Software Engineering Branch, and Andrew Mitchell, Co-op Student in Wallops Systems Software Engineering Branch, participated in the Community Leadership Educational Workshop for the Boys and Girls Club sponsored by the Seaford (DE) Kiwanis Club on April 5.

Good Data From MaCWAVE Campaign in Sweden

Richard A. Goldberg, NASA Goddard Space Flight Center

"Both of the Terrier-Orion sounding rockets (41.030 and 41.031) were launched from Esrange, Sweden, in late January 2003.

Our initial look at telemetry records indicates that both payloads performed perfectly, with all instruments providing the required data. Trajectories were close to nominal, thereby, quite acceptable for our scientific purposes.

Combining these flights with the array of meteorological falling sphere and balloon payloads shows that the overall MaCWAVE mission was highly successful.

We attribute much of the success to the NSROC Team led by Rick Weaver. The capability of this team permitted us to be ready for the geophysical conditions under study and to permit launch of the rockets at precisely the desired time.

The excellent operation of each payload is further attributed to the expertise and professionalism of this team.

My scientific team and I look forward to working with high caliber teams similar to the one provided to work with us during MaCWAVE.

Thanks again for all of your support."

IFMP Information Booth

Date: April 10
Time: 11 a.m. to 1 p.m.
Place: Building E-2 Cafeteria

The Integrated Financial Management Program (IFMP) will have an information booth to answer questions about Core Financial training, the financial system cut-over period, or anything else IFMP-related.

The IFM Program will also hold an Town Hall meeting with a project leadership panel answering questions in Greenbelt on April 23 from 1:30 to 3 p.m. Wallops employees can teleconference in from the Library Conference Room on the 1st floor of Building E105.

For more information visit the IFM website: http://ifmpinfo.gsfc.nasa.gov/ or call Chris Koenemann on x66-1953.

Sympathy is extended
to the family and friends of
Don Hoskinson
who died at his residence in Onancock on March 30. Hoskinson retired from NASA Wallops Flight Facility as an electrical technician in the Telecommunications Systems Group, Data Acquisition Branch.

Need a Hand With Your Career Plan?

Dates:
April 16 in the afternoon
April 17 in the morning

Place:
MEC, Building E-104, Room 307

Here's your chance to talk with a career coach about where your career is headed.

Civil service employees can set up an individual, confidential appointment to talk about any area regarding their career that is of concern to them on April 16 from 1 to 4 p.m.and April 17 from 9 to 11 a.m.

If you are contemplating a career change, in need of assistance with resume writing and interviewing techniques, or trying to develop an IDP, a career coach can help.

The Professional Development Center brings career coaching services to Wallops once a month.

Contact Tracey White on x66-7823 or the Career Coaches on x66-5794 to set up an appointment.

For Sale

52" Color computer monitor. Includes the video card, keyboard, and remote control. Never used. $600. Call Dave Lang on (757) 824-1727

Easter Egg Hunt 10:30 a.m. on April 12 Cropper Center

Bring a covered dish and your kids! Hot dogs and hamburgers will be available.

To register, call Alex Coleman on x1976 or email Alexander.M.Coleman@nasa.gov by April 9. Sponsored by the Wallops Exchange and Morale Association, Morale Activities Committee and the Navy's Family Support Group.

Inspire the Next Generation Take Our Children to Work Day

Students in the 4th through 12th grades are invited to participate in this year's Inspire the Next Generation Day to be held April 24. NASA, the Navy's Surface Combat Systems Center (SCSC) and the National Oceanic and Atmospheric Administration (NOAA) are sponsoring the event that also is supported by the Federal Women's Program.

Inspire the Next Generation Day provides girls and boys an opportunity to see women and men working together and to explore non-traditional careers in the Federal workforce. An emphasis will be on careers available in the government and the preparation required for these positions.

The day will begin at 8 a.m. with registration and a welcome at the Cropper Center. The student will then attend the workshop that he/she has chosen for the morning with their sponsor. Sponsors will be responsible for transporting and escorting the student at all times. The morning workshop activities will be finished by 11:30 a.m. Afternoon workshops will begin at 1 p.m. for students and their sponsors. At the completion of the afternoon workshops, students will spend the remainder of the afternoon with their sponsor at his/her jobsite.

Some work areas may not be appropriate for this activity. Prospective sponsors should check with their supervisor(s) before agreeing to sponsor a child. If you do not have a child in this age group, consider sponsoring a relative or friend's child.

Programs will be filled on a first come, first served basis. For further information or to register a student, contact Ed Parrott, Wallops Teacher-On-Loan at x1681.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: www.wff.nasa.gov

Editor Betty Flowers